

Alg. 2 Warm Up #11-5

Solve: $x^3 + 3x^2 + x - 5 = 0$

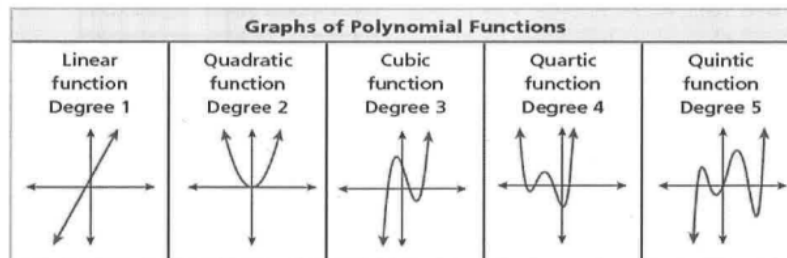
HW Questions:

Alg 2B HW Polynomial Summary

Name: _____

Per: _____ Team _____

Polynomial functions are classified by their degree. Here are a few examples:



What do the **odd degree** polynomials have in common?

What do the **even degree** polynomials have in common?

The **end behavior** of a polynomial can be characterized in this way:

$P(x)$ has	Odd Degree	Even Degree
Positive leading coefficient $a > 0$	Right side rises left side falls	Rt. side rises left side rises
Negative leading coefficient $a < 0$		

For questions #1-4, sketch the graph of the given polynomials **WITHOUT** a calculator.

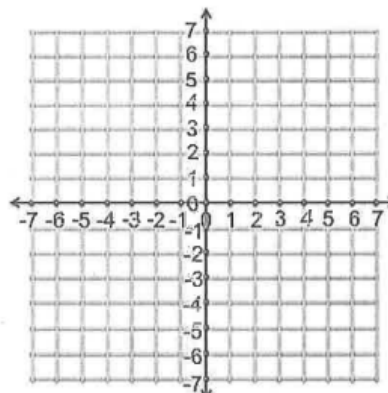
1. $g(x) = \frac{3}{4}x^3(x-1)(x+2)^2(x-3)^3$

Degree:

End behavior:

Number of
Turning points:

Real zeros:
(roots)



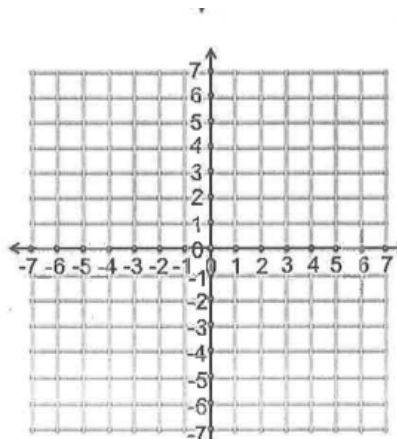
2. $h(x) = -2(x + 7)^4(x + 2)(x - 1)^3$

Degree:

End behavior:

Number of
Turning points:

Real zeros:



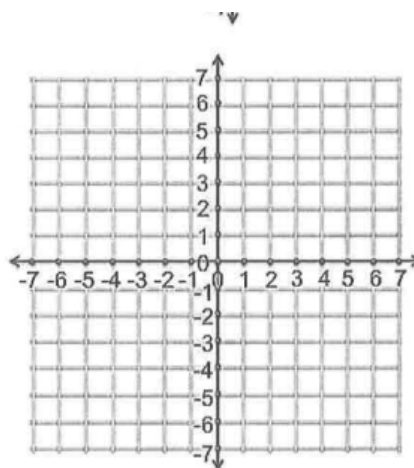
3. $m(x) = (x + 1.5)^2(x - 4)^2$

Degree:

End behavior:

Number of
Turning points:

Real zeros:



4. $f(x) = -3x(x+5)^2(x+1)^3(x-2)^2$

Degree:

8th

End behavior:

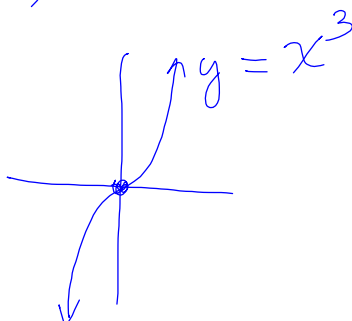
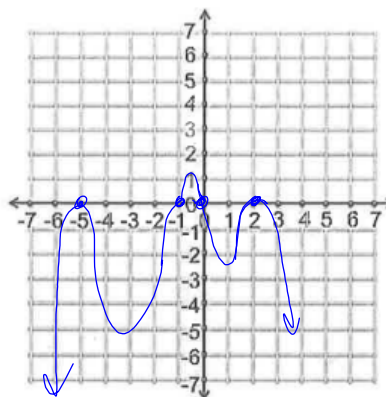
Rt falls
left falls.

Number of
Turning points:

6

Real zeros:

0, -5, -1, 2



5. A polynomial function g is graphed at below.
Use it to answer the following questions.

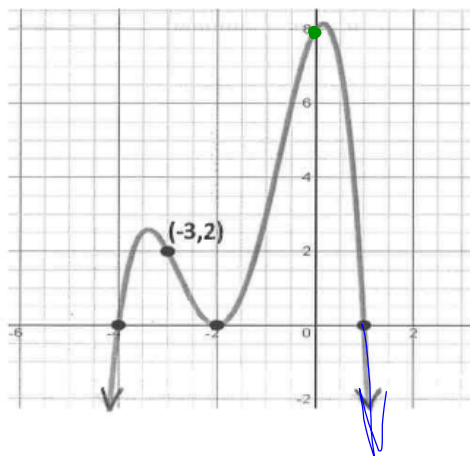
of turning points? 3

Lowest possible degree of $g(x)$: 4th

Odd or even degree? even

Positive or negative leading coefficient? -

List the zeros: -4, -2, 1



Write the equation of $g(x)$ in factored form:

Goal: $g(x) = a(x-p)(x-q)(x-r) \dots$

$$g(x) = a(x+4)(x+2)^2(x-1)$$

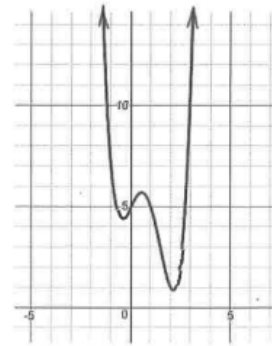
6. Given the graph of $p(x)$ to the right, answer the following questions.

of turning points? 3

Lowest possible degree of $g(x)$: 4

Odd or even degree? even

List the zeros: No Real # Zeros



$$6x^4 + 7x^3 - 36x^2 - 7x + 6 \div (x + 3)$$

$$\begin{array}{r|rrrrrr}
 -3 & 6 & 7 & -36 & -7 & 6 \\
 & \downarrow & -18 & 33 & 9 & -6 \\
 \hline
 2 & 6 & -11 & -3 & 2 & \text{☺} \\
 & \downarrow & 12 & 2 & -2 & \\
 \hline
 & 6 & 1 & -1 & \text{☺} &
 \end{array}$$

(x - k)

$$(x+3)(6x^3 - 11x^2 - 3x + 2)$$

$$(x+3)(x-2)(6x^2 + x - 1)$$

$$(2x \quad)(3x \quad)$$

Week 11 Classwork

Warm up

8 - # 3 ---> 6 (purple)

8 - #26 ---> 30, 32, 35

Polynomial Division #1 (white)

Polynomial Division #2 (tan)

Synthetic DivisionWhen divisor looks like: $(x - k)$

k	Coefficients in order
↓	

Process

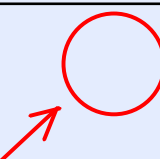
bring down first #

multiply by k

add column

multiply by k

add column...



remainder

If $(x + 3)$, then $(x - (-3))$ so $k = -3$

Friday's Classwork:

8- # 130, 134, 135

HW: 8 - # 138, 142 - 146,

148, 151